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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,337	03/29/2004	Cecil Curtis Blair	7744-NES	2697
49459	7590	11/30/2005	EXAMINER	
NALCO COMPANY 1601 W. DIEHL ROAD NAPERVILLE, IL 60563-1198			RICHARD, CHARLES R	
			ART UNIT	PAPER NUMBER
			1712	

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/812,337	BLAIR, CECIL CURTIS	
	Examiner	Art Unit	
	C. R. Richard	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2-28-2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities. There appear to be typographical errors in a few places in the specification such as on page 1, line 22 and page 8, line 19. Appropriate correction is required.

Claim Objections

2. Claims 8 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 7 and 8 have identical scope.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 11-12 and 18-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It would be impossible to tell if a fluid (which might be aqueous overall) contained a certain volume of an aqueous solution containing a polymer if the amount of polymer in the solution is not stated. In other

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words, what polymer solution is Applicant referring to in the rejected claims? Note that Applicant has not presented these claims in a form that is clearly product by process either.

In addition, claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The type of molecular weight is not specified – is it number or weight average? Note that it appears that the word “weight” needs to be inserted after the word “molecular” in claim 14.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Allenson et al. in US Patent 4,588,508.

Allenson discloses a polymer composition useful in clarification of waste water, the composition comprising (a) a first cationic polymer having a weight average molecular weight ranging between about 2,500-1,000,000, in admixture with (b) a second cationic polymer having a weight average molecular weight ranging between about 1,000,000-50,000,000, wherein said polymer composition contains a weight ratio

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of a:b ranging between about 50:1 to 1:50; preferably the first cationic polymer has a weight average molecular weight ranging between about 5,000-800,000, and the second cationic polymer has a weight average molecular weight ranging between about 5,000,000-35,000,000 (see column 2, lines 3-20).

The first cationic polymer may be a homopolymer or a copolymer of a vinylic cationic monomer[s], or it may be a polymer which has been synthesized by condensation methods, for example the condensation reaction of ethylene dichloride and ammonia (see column 2, lines 20-26). Preferably, however, the first cationic polymer is a homopolymer or a copolymer of a vinylic cationic monomer[s] chosen from the group consisting of DADMAC, DMAEM (dimethylaminoethylmethacrylate), DMAEA (dimethylaminoethylacrylate) and MAPTAC, among similar monomers, as well as their acid and quaternized salts (see column 2, lines 26-33). Most preferably, the first cationic polymer is a homopolymer of a vinylic cationic monomer chosen from the group consisting of DADMAC, MAPTAC, DMAEM, DMAEA, and their acid and quaternized salts, and having a molecular weight ranging between about 5,000-800,000 (see column 2, lines 44-50). Synthesis of polymers may be by various methods including emulsion polymerization (see column 4, line 25-30). Quaternization may be by agents such as methyl chloride or dimethyl sulfate (see column 3, line 66 to column 4, line 6).

Various multivalent metallic salts may be added [these are crosslinking agents] (see column 4, lines 32-42). Note that the polymers themselves are viscosifiers and foaming agents.

The polymer composition may be added to oil field ground waters, oil field water exposed to drilling muds and drilling muds diluted with water (see column 5, line 60 to column 6, line 6 and column 7, lines 54-58). The polymer composition alone and/or in a waste water would be suitable for clay stabilization, and at least the latter would be suitable for use as a stimulation fluid.

As to claims 11-12, note the discussion in the 35 USC 112 rejection above concerning the unspecified amounts concentration of polymer – any amount would do then for purposes of rejection.

7. Claims 1-2, 5-8 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Holderby in US Patent 3,549,542.

Holderby describes a composition made by mixing a cationic polymer with an aqueous solution of a cellulose derivative or a hydratable colloidal clay; the result may then be further combined with an anionic organic detergent (see Abstract); the detergent is a foaming agent of course. The cationic polymer may be quaternized polydimethylaminoethylacrylate with a MW from about 1000 to about 5,000,000 (see column 3, lines 34-40 and claim 1); Example 5 shows such a polymer at MW 5000. The polymer may at 1 to 35 weight percent of the mixture before combination with the anionic detergent, and the final combination may be from 4 to 60 weight percent of the initial mixture (that without the anionic detergent) (see claim 1); the anionic detergent may be present at as little as 4 weight percent in the final combination (see column 3, lines 19-22). The cellulose derivative may be hydroxyethylcellulose among others and

performs as a thickener (see column 4, lines 5-20). Any of the compositions disclosed by Holderby (with or without the anionic detergent) would be useful as a clay stabilizer or stimulation fluid.

8. Claims 1-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Huang et al. in US Patent 6,262,168.

Huang discloses aqueous polymer dispersions useful in water clarification/oil field applications (see column 1, lines 5-10). The dispersions contain a first cationic polymer which may be 99.9% of a cationic recurring unit such as a quaternary salt of dialkylaminoalkyl(alk)acrylate (see column 2, lines 27-50).

A second polymer (water soluble) is also present which may have 100% cationic recurring units (see column 6, lines 54-61). Especially preferred are second polymers made up of methyl chloride or dimethyl sulfate quaternary salts of dimethylaminoethyl(meth)acrylate (see column 7, lines 10-17); the weight average molecular weight is generally [not always] greater than about 10,000. The amount of second polymer may be as high as 20 weight percent of the dispersion (see columns 5 and 7).

A perchlorate or similar breaker may be included (see column 9, lines 39-41). The dispersions of Huang may be intermixed with emulsions (see column 8, lines 58-65).

The compositions of Huang would be suitable as clay stabilizers or stimulation fluids.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aften et al. in US Patent 5,342,530, optionally in view of Allenson et al. in US Patent 4,588,508 and/or Huang et al. in US Patent 6,262,168.

Aften teaches a clay stabilizer for downhole use comprising an aqueous solution of quaternary amine-based cationic polyelectrolyte and salt(s) (see Abstract). The weight average MW of the polyquats of Aften may be about 1,500 to 50,000 (see column 3, lines 1-2). The first examples of representative polquats mentioned are the quaternized salts of polymers of N-alkylsubstituted aminoalkylesters of acrylic acid such

as the quaternized salts of poly(diethylaminoethyl(meth)acrylate) (see column 3, lines 5-12). The fluids of Aften may include a viscosifier and be useful as stimulation fluids (see column 4, lines 34-37); such as fluid may also contain crosslinkers, bacteriocides, breakers, iron control agents, foaming agents, gas/liquefied gas stabilizers (see column 4, line 67 to column 5, line 5). The providing and contacting steps of the rejected method claims are implied in the uses disclosed. Aften notes that clay stabilization can involve flocculation (see column 1, lines 55-60).

Aften discloses all of the limitations of the rejected claims in the proper context, but only generically (not quite specifically) discloses the quaternary salts called out in the rejected claims.

From the disclosure of quaternized salts of polymers of N-alkylsubstituted aminoalkylesters of acrylic acid such as the quaternized salts of poly(diethylaminoethyl(meth)acrylate) in Aften, it would have been obvious to one of ordinary skill in the art to use quaternized salts of poly(dimethylaminoethyl(meth)acrylate), as methyl and ethyl are very close to each other in the homologous series of alkyl groups, and the change would be expected to make little if any difference in the properties of the overall polyquat. Further, the use of methyl chloride and dimethyl sulfate quaternary salts would also have been obvious to one of ordinary skill in the art as these are common quaternizing agents. The copolymer of the quaternary salts of dimethylaminoethyl methacrylate and dimethylaminoethyl acrylate would also be obvious as homologues of the homopolymers. The rejected claims are thus rendered obvious.

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The obviousness of the rejected claims may be seen also/optionally as follows. The "missing" teachings of Aften are supplied by disclosures in Allenson and/or Huang that were discussed above. As seen above, Allenson and Huang both teach compositions with polyquats within the fairly compact genus of Aften for use in waste water clarification in oil field and other contexts. Of course, flocculation is a process often involved in water clarification, and as stated above, Aften notes that clay stabilization can involve flocculation; Huang mentions a flocculation application in a mining and mineral context at column 14, line 43. Thus, one of ordinary skill in the art would have noticed a close relationship in the two applications and the polyquats involved. It would thus have been obvious to one of ordinary skill in the art to use the polyquats of Allenson and Huang within the genus of Aften in the compositions of Aften. The rejected claims are thus rendered obvious.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure: US Patents 4,147,627; 4,462,718; 4,670,166; 4,830,911; 5,099,923; 5,100,660; 5,256,252; 6,054,054; 6,315,866; 6,398,967; 6,454,003; 6,729,402; 6,787,506 and 6,831,042.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. R. Richard whose telephone number is 571-272-

8502. The examiner can normally be reached on M-Th, 8am-6pm and alternate Fridays, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles R. Richard


PHILIP TUCKER
PRIMARY EXAMINER
ART UNIT 1712